DETERRENCE IN THE FACE OF EXPLOSIVE PEACE

SAC Tankers into the Twenty-first Century

Maj Henry N. Gant

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SAC Tankers into the Twenty-first Century

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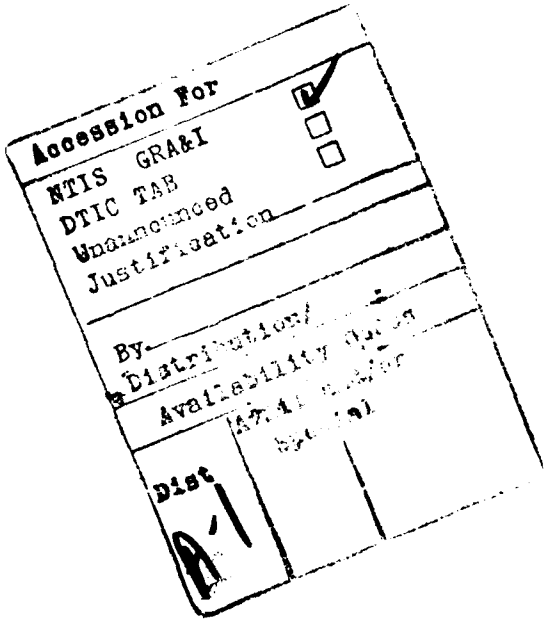

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Foreword

Air power moves on jet fuel; jet fuel moves by tankers. The impact of air refueling on Air Force capabilities and missions is crucial and expanding. As forward basing and forward mobility give way to rapid mobility from the United States, the role of the tanker will become a critical part of almost every air operation.

With the deactivation of the Strategic Air Command in June 1992, air refueling assets have been spread between many major air commands with the majority of the tanker fleet resting in the control of the Air Mobility Command. In addition, tankers and bombers no longer sit on day-to-day alert at airfields across our country. Even though the force structures that Major Gant describes have changed, the need to shape the refueling forces to fit the needs and shape of the refueling mission remains valid. This paper points out a way to use a scarce but critical asset as we move into the next century.

About the Author

Maj Henry N. Gant

Maj Henry N. ("Hank") Gant attended Texas Tech University in Lubbock, Texas. In May 1978 he was awarded a bachelor's degree in business administration with a concentration in management and was commissioned through the Air Force Reserve Officer Training Corps. In September of 1978 he was sent to undergraduate navigator training at Mather Air Force Base (AFB), California. After earning his wings he was assigned to the Strategic Air Command's 55th Strategic Reconnaissance Wing at Offutt AFB, Nebraska, and trained on RC-, EC-, and KC-135 aircraft.

While at Offutt Major Gant was selected to attend undergraduate pilot training (UPT) at Laughlin AFB, Texas. After graduation from UPT in November 1984, he volunteered to return to the 135 weapon system. After initial training on the KC-135A model, Major Gant was stationed at McConnell AFB, Kansas, and was qualified in the newly modified KC-135R model. In the fall of 1988 he was assigned to Altus AFB, Oklahoma, where he served as flight commander, assistant operations officer, instructor pilot, and flight examiner.

In the summer of 1990, Major Gant was chosen to participate in the Airpower Research Institute's (ARI) command-sponsored research fellow program held annually at the Center for Aerospace Doctrine, Research, and Education, Maxwell AFB, Alabama. Concurrent with this assignment, he also attended Air Command and Staff College. He completed this study during the 1990–91 academic year.

Major Gant and his wife, Kristie, have two children, Amy and Craig.

Acknowledgments

The command-sponsored research program offers a rare opportunity for an officer to study at Maxwell AFB, Alabama, to research a subject of interest to the sponsoring major command under the auspices of the Airpower Research Institute, and simultaneously attend Air Command and Staff College or Air War College. I am thankful to the Strategic Air Command (SAC) for allowing me the chance to attend this program.

In addition, I would like to thank the people who have directly helped me in the formulation and writing of this paper. Many people at Maxwell AFB, SAC Headquarters, and out in the field have helped to produce this study.

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I am especially thankful to my wife and two children. All three suffered through a year of "I can't because I have work. . . ." Their faith in me, their love for me, and their respect for my profession enabled me to complete this study.

Introduction

When the organizational structure of the Strategic Air Command was developed in the early 1960s, the only mission for tankers was to refuel bomber aircraft. At that time it made the best sense to put tanker squadrons in bomb wings. Today, however, the nature of conflict has changed. The present organizational structure of SAC was designed for nuclear war. In addition, the United States' perennial adversary has lost the cold war. With the lowering of the Soviet threat, the role of tankers in support of nuclear deterrence missions has also declined. However, the role of the tanker force has expanded to fill other air power needs. In response to the broadening threat, SAC must continue to enlarge its definition of deterrent forces, of which the tanker force plays an important part.

Any force that enables the US to instill respect for the viable threat of reprisal in any aggressor is, in fact, a deterrent force. For example, the Air Force's ability to drop a small number of conventional bombs onto Tripoli, Libya, probably has a more direct deterrent influence on the spread of terrorism than our ownership of a vast array of nuclear weapons that could not be effectively used on a terrorist group.

The unique role supporting the Strategic Air Command, Tactical Air Command, and Military Airlift Command, and Navy foreign receivers dictates a new organization so the tanker force can optimally service the greatest number of refueling users under rapidly changing world conditions.

The goal of maximum usability requires a deployable refueling package (DRP) concept. The basic DRP would be a four-ship fleet of tankers, self-supporting and internally led. In the event of larger scale missions, these basic packages would be combined into instant tanker task forces capable of supporting large aerial refueling operations. The DRP would allow the rapid support of forward-based operations in groups containing their own maintenance and operations support capability. The DRP would be a standard grouping set for air refueling. All tanker units would be manned and structured with the flexibility to support the entire range of receiver aircraft mission scenarios. Under this structure, flying organizations needing air refueling support for training or actual missions could be supported in the most efficient means possible.

This study addresses the organization of the DRP and argues that it will help the Strategic Air Command respond to changing international situations. This package concept also will allow the Air Force to reshape the tanker squadron to save money and manpower. Thinking about the mission-designed air refueling package leads one to consider ways to increase the efficiency of the entire refueling organization. Building on the framework of deployable refueling packages, squadrons would be reshaped to lower manpower requirements and still perform their air refueling mission. To more equitably distribute the work and training load, the traditional SAC squadron

would be restructured. In addition, the size of both squadrons and wings would be increased to eliminate duplication of effort and gain economies of scale in sortie production. A closer connection of line and staff functions at the wing level and below would tend to put more manpower directly to the mission, thus producing the greatest possible output per person. The chain of command above the wing level would be likewise streamlined to increase both responsiveness and manpower savings in the headquarters.

The adaptability of this package concept to the Air National Guard and the Air Force Reserve is important because of the growing numbers of tankers and tanker aircrews that are part of these two unique organizations. Other important issues to be covered are continued support of the single integrated operational plan (SIOP) and tanker basing. Each of these issues will be addressed to help develop a more effective use of limited manpower and aircraft in the air refueling force.

Chapter 1 shows that an organizational structure should be founded on the mission or task to be performed. For air refueling that task would best be served by the deployable refueling package concept. This chapter also explains and details the concept and resulting structure, based on a notional force of 300 active duty KC-135s and 60 KC-10s. It is important to note that changes in how the Air Force organizes the lowest echelons of the command will logically lead us to explore the higher steps of the organizational ladder and those areas that can be changed to increase overall organizational performance or efficiency.

Chapter 2 discusses the Air National Guard and Air Force Reserve and how the DRP can also be used with the existing structure and mission of the reserve forces. The Guard and Reserve add a great deal of capability to refuel other aircraft; however, their missions and organizations merit individual explanation.

Chapter 3 addresses two of the many issues that the DRP organization would impact. First, what impact will this change have on the tanker's ability to support the SIOP? Next, the change and restructuring of units and organizations could affect the command's bases. These issues are discussed in light of the proposed organizational change.

Chapter 4 summarizes both the proposed structure and the benefits of implementing the new organization for the tanker force.

A proposal such as this brings many questions to light, including actual bases, actual personnel, and aircraft movement costs. How to integrate the maintenance and base support missions to the deployable format is a key issue not considered in this study. This is but one of several important questions left untouched due to the focus of this study.

A rethinking and restructuring of the DRP is needed because of the changing threat and the prospect of a reduced defense budget. Deterrence has broadened from the cold war's East versus West theme. With the destruction of the Berlin Wall and the military rise and fall of Saddam Hussein, our concept of air power employment is changing. Permanent forward basing will be replaced by forward projection in times

of crisis. In addition, the response of the Air Force to each future crisis could conceivably be comprised of completely different mixes of aircraft. Many of the aircraft will require air refueling to deploy and complete their missions. A standard deployment structure would enable the Strategic Air Command to plan and execute tanker support quickly and correctly for any contingency and mix of receiver aircraft.

Chapter 1

A New Organization for Efficiency

"In organizations, as in architecture, form follows function."[1] Stated another way, purpose (mission) dictates the best organizational structure. Further, the structure is correct only if the mission is correct.[2] In the case of Strategic Air Command (SAC) tankers, the present structure is based on a narrow mission definition that does not reflect the total need for aerial refueling. Originally, SAC structured the tanker units to support bomber aircraft. The tanker squadrons have normally been assigned to and with SAC bomber and fighter wings.[3] However, the total need for air refueling has grown beyond the use of one single command.

The need for en route refueling for mission accomplishment is no longer limited to bomber aircraft. SAC, as the single tanker manager, must refuel bombers, fighters, transports, naval aircraft, and various foreign aircraft to allow them to perform their missions. For form to follow function, SAC should adapt the structure of tanker organizations throughout the Strategic Air Command to meet present mission requirements more efficiently.

The Basic Building Block of a New Structure

The first part of reshaping the tanker organization involves developing a standard package to support off-base receivers and contingency operations. This grouping, the deployable refueling package (DRP), would become the baseline refueling support component for large-scale training, exercises, and contingency operations. This package concept would allow air refueling support to be adapted to each specific mission or operation. The DRP form is flexible enough to be customized on an ad hoc basis or be prepackaged with on-the-shelf operational plans.

The DRP would be a packaged set of four tanker aircraft and personnel that would make a deployed operation semi-independent and self-sustaining. The package would normally include four aircrews for training deployments and a planner (who would also be the ground point of contact to interface with the units being supported) for planning the missions.[4] In addition to the operations personnel, each aircraft would have maintenance specialists to service and fuel the aircraft away from home station. Finally, the DRP would include a package commander (possibly one of the aircrew) who would be responsible for the entire mission during the time the DRP is away from home station.

The DRP would become a short-term, in-place tanker task force when deployed to support any user at a staging base or forward operating location.[5]

Each aircraft would have a flight crew and a minimum of two crew chiefs.[6] Each package would bring essential support equipment specifically tailored for the proposed mission and operating location. The package commander would be an officer qualified to command these detachable units based on rank, knowledge of tanker operations, and completion of specific training in the use of the tanker asset.

The basic purpose of the DRP is to put tanker support at the user level. The DRP format will allow tankers and receivers to train and operate face-to-face. As often as possible, tankers and receivers will plan joint phases of the mission with emphasis on crisis points, receiver needs, and tanker capabilities. After the flight, mission personnel will be debriefed to develop "lessons learned" prior to any contingency.

Supporting Larger Needs

The deployable refueling package structure will allow SAC to deploy a larger number of aircraft from the same wing to support contingency operations. This can improve operations security by lowering the number of organizations involved in the tasking of sensitive or classified missions. In addition, the DRP's planner can update individual mission plans at the forward location on a near-real-time basis rather than the crews' having to make do with the planning materials they received prior to deployment. Otherwise, they would have to choose between losing crew rest or taking time from tactical planning to do basic mission planning.

The basic idea of a deployable package for refueling is not totally new. It is an amalgamation of other ideas or of past employment procedures. Historically, if SAC needed tankers for support operations, numbered air force (NAF) headquarters would pick specific refuelers, often from several units, to support a refueling need.[7] In some cases individual air refueling wings have supported contingency operations as integral units. For example, the 305th Air Refueling Wing single-handedly supported an exercise in 1987 while forward-deployed.[8] This deployment demonstrated that one wing can successfully support a large-scale exercise and still fulfill its other mission obligations. The advantage of a forward tanker force commander being familiar with the crew force is obvious.

The Value of the Deployable Refueling Package Structure

Developing the DRP structure has numerous strategic, economic, and operational advantages. The package concept not only supplies tankers, it

supplies instructions on optimum tanker use. In the past, a great deal of imprecision has been involved in developing planning factors for receivers. One former NAF planner related that he increased the receiver's request by 30 percent as a planning factor.[9] The already limited tanker asset is becoming more scarce as the number of tankers declines. The DRP format could alleviate such information problems. Since each DRP would have its own planner, the planner could educate individual receiver units on the strengths and weaknesses of different tanker employment methods, and the planner could learn more about each individual receiver. In long-range employment scenarios, tanker availability and offload capability could have a direct effect on the number of weapons delivered. In some cases improper tanker use could cause the loss of an entire mission. It is easy to see that prior face-to-face training would pay dividends in a crisis. As the custodians of a force multiplier, the tanker community should try to increase the multiplication factor as much as possible.

Getting the best use of any aircraft involves good training. The DRP would help both tanker and receiver crews train for crisis situations. SAC could exercise mated receiver and tanker units for specific contingency plans. Groups slated to deploy to desert climates could exercise together in desert conditions before the actual event. With the two units training face-to-face, they could fix mutual problems during practice rather than during an actual operation. For actual employment, the DRP format will automatically provide a "tanker guy" at air operations in the forward area. The package program also lowers the need for additional personnel to set up a tanker task force for a large number of aircraft. Since each package comes complete with its own planner, multiple DRP taskings will furnish enough planners to successfully cover change and contingencies in the forward operating area.

The DRP system is designed to be flexible, and it includes its own planning function for quick-reactive changes in the "fog" of war. Because the tanker mission is a service function, the tankers in an employment scenario can be the last to know the details of an upcoming operation. Even if the tanker planners know a mission is coming, they cannot begin to work in earnest until strike planners identify targets and strike package sizes. These two factors are critical in determining the total mission fuel requirements.

The deployment of four aircraft to a forward location for training could waste valuable resources if the receiver unit does not need that much refueling support. So, when a package deploys, the host receivers can double up with other receiver units (if the receivers are compatible) for large-group refuelings. If they could not use the time well in that way, the tanker squadron schedulers could adjust the long-term master refueling schedule (horse blanket) to allow the tankers to support normal training refueling from a forward location. This method is similar to current off-station refueling training exercises such as Business Effort. Multireceiver operations would greatly increase the training of the tanker crews. The challenge of controlling an operation away from home base would add to the experience level of each

person involved, thus increasing the amount of training per flight hour for each tanker crew member.

The forward-deployed tankers could extend the training legs of tankers at a lower cost. This training pattern mimics the hub-and-spoke arrangement used by airlines to lower nonproductive flight time. This could also lower the amount of flying time with no valid training use and still refuel the greatest number of receivers across the United States.

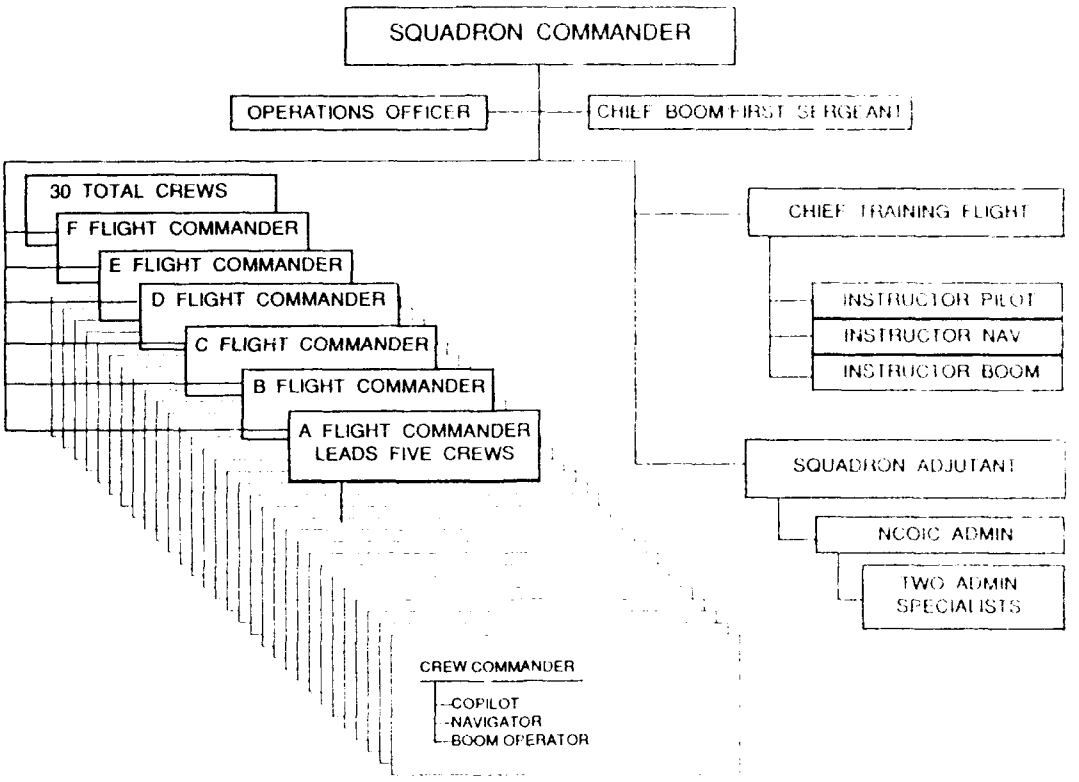
The DRP format would allow larger groups of tankers and receivers to train for effectiveness in emission control environments.[10] Since the same groups could train together, they would be more effective in actual missions that use emission restrictions or experience meaconing (to receive radio signals and rebroadcast on the same frequency to confuse navigation), intrusion, jamming, or interference.

In addition, the DRP has the advantage of expanding an individual aircrew member's knowledge of air refueling operations. Currently, the average tanker crew member is not required to know much about refueling operations. He or she may be an expert at flying or navigating the tanker, but many younger tanker crew members have no knowledge about how tankers fit in the larger picture of the Air Force mission. In other words, the DRP format forces crews to learn about tanker employment instead of just tanker-flying operations. Expertise in the weapon system is paramount if the Air Force plans to use tankers effectively.

A New Squadron Structure

The tanker force would benefit from a realignment of the structure and size of tanker squadrons and wings. Presently, SAC has several different sizes of refueling squadrons and wings. Manpower is based on the number of primary aircraft authorized (PAA).[11] One active duty unit might have as few as 13 aircraft, another as many as 39.[12] The large variation in the numbers of tankers and crews assigned to different bases can be confusing if you are trying to "build a package" to supply in-flight refueling for a short-notice mission. The task of choosing supporting units is made more complex due to normal unit responsibilities. Each unit will have single integrated operational plan (SIOP) alert commitments and must also support normal tanker task force rotations in addition to furnishing crews and aircraft to support last minute contingency tasking.[13]

The different squadron sizes cause the number of available aircraft and aircrew members to range widely, depending on the size of the organization. For simplicity and efficiency SAC should have larger, standard-sized squadrons. The KC-135 squadron should be standardized to 24 PAA. Compare the present tanker squadron as shown in figure 1 with the proposed structure shown in figure 2. Notice that under the new organizational plan,



SPAN OF CONTROL

SQUADRON COMMANDER SUPERVISES	10
OPERATIONS OFFICER	0
FIRST SERGEANT	0
EACH FLIGHT COMMANDER	7
EACH AIRCRAFT COMMANDER	3
EACH CREW NAVIGATOR	0
SQUADRON ADJUTANT	1
NCOIC ADMINISTRATION	0
CHIEF, TRAINING FLIGHT	3

NOTE: THE FLIGHT COMMANDER IS NORMALLY AN AIRCRAFT COMMANDER ON A CREW.

Figure 1. Current 30-Crew Tanker Squadron Organization

the span of control is more evenly distributed. Specifically, the squadron commander actually would directly supervise fewer personnel than he or she has supervised in the past. The standard-sized squadron will allow SAC planners to estimate crew availability faster and more efficiently. Further, the 24 PAA squadrons will have a larger array of crews to meet contingency tasking from each particular base. This will allow crisis planners to task a larger number of DRPs from a smaller number of bases. The smaller pool of bases will lower operations security risks and increase the teamwork of the crews tasked for the mission. Both small and large squadrons have standard manning positions such as the squadron commander, operations officer, adjutant, and administrative support personnel. To combine two smaller squadrons into one larger squadron saves approximately 10 manning posi-

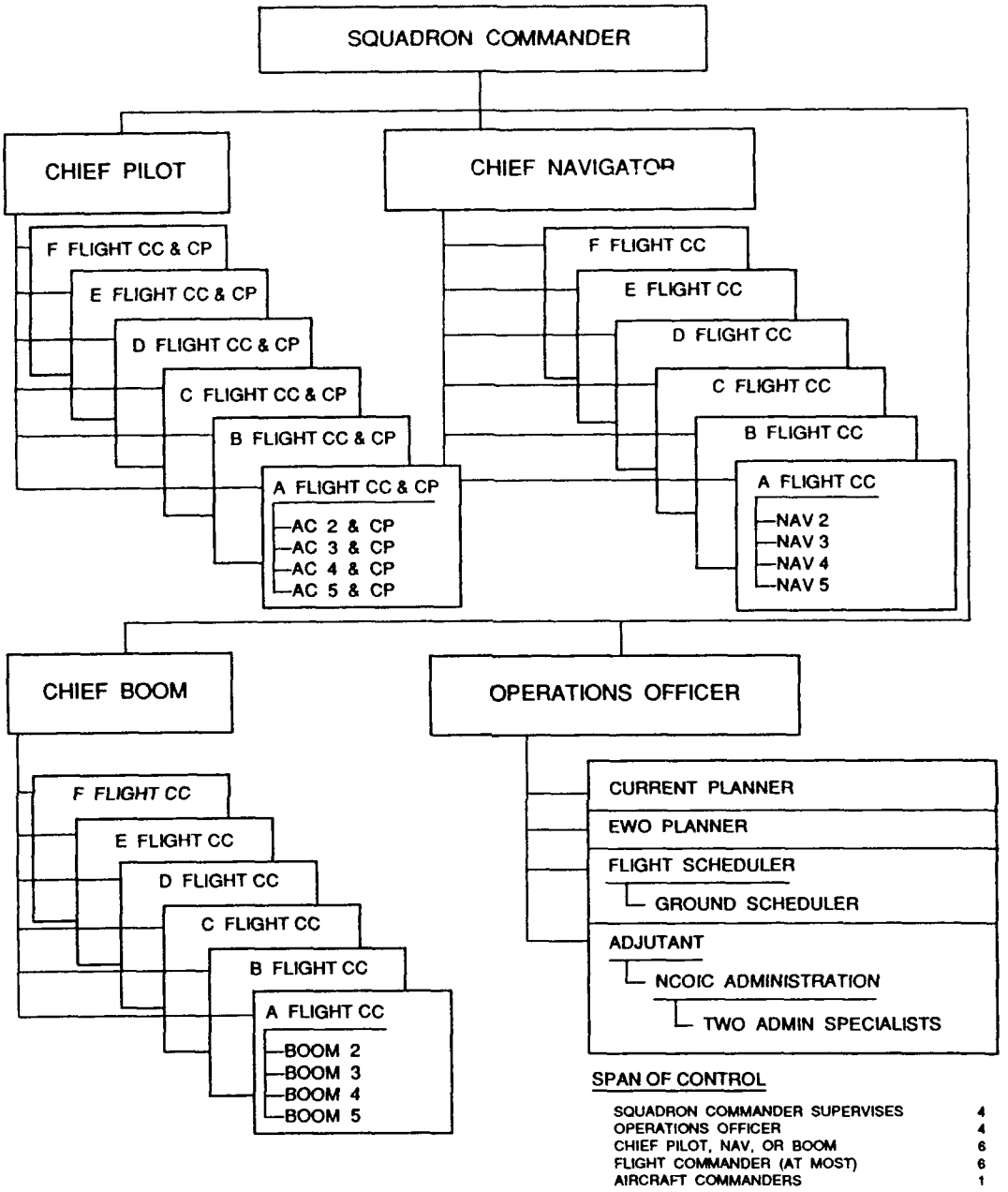


Figure 2. Proposed 30-Crew Tanker Squadron Organization

tions.[14] Figure 1 illustrates a typical KC-135 squadron and the span of control of key squadron personnel. The proposed squadron organization will not only grow in crew size, but it will also control functions that previously have been accomplished above the squadron level. These functions include current plans, emergency war order (EWO) plans, ground and aircrew scheduling, and intelligence.

Bringing Staff to the Squadron Level

Moving these functions to the squadron level will lower the staff requirement at the wing level. Transferring these manning positions to the squadron level will not only put the support where it is needed but will also reinsert the more experienced crew members at the squadron level to serve as instructors and role models for the younger crew members.[15] This advantageous arrangement might require greater crew member assistance for many taskings and projects. The larger squadron size will result in more help for projects. Further, performing these tasks at squadron level will allow the more inexperienced crew members to learn the planning function earlier—again, training all crew members to employ tankers, not just how to fly them. The planners will work under the control of the squadron operations officer, who will ensure that additional crew duties are distributed fairly and that the planners receive additional help as needed.

The squadron will also gain control of both ground and aircraft scheduling. This arrangement will allow the two people responsible for crew training—the squadron commander and operations officer—to control the training schedules for their squadron.

A New Design for the Crew Force

Presently, SAC tanker crews are assigned to an "integral crew"; that is, the crews are picked to fly together, to perform week-long SIOP alert duties together, to take leave at the same time, and to deploy together. The integral crew concept is not the most efficient way to equalize flight training, temporary duty (TDY) assignments, and alert duty taskings for tanker crews. Moreover, many squadrons spend a lot of time arbitrarily moving crew members around to keep crew status figures consistent with SAC guidance. The crew functions as the basis for supervision in the squadron (see fig. 1). Each aircraft commander supervises the copilot, navigator, and boom operator assigned to his or her crew, unless the navigator outranks the aircraft commander. In that case the navigator will be supervised by a senior officer up the chain of command. The flight commanders supervise the aircraft commanders, and the squadron commanders supervise the flight commanders.

A Mixed-Pool System

As figure 2 illustrates, the new squadron design would change the crew concept, with the pilot and copilot remaining as a team. This arrangement

places the boom operator and navigator in "specialty pools" with other crew members who are qualified to serve in the same position in the aircraft.

Why a mixed-pool system? The pilot and copilot are a natural team; the two pilots must share the aircraft controls and aid each other in the performance of normal and emergency duties. According to the technical order, two pilots make up the minimum crew for a KC-135.[16] Having two pilots who are familiar with each other directly influences the safe completion of the mission. In addition, the copilot is the only "trainee" on the crew; that is, he or she will eventually "upgrade" to aircraft commander. So, in addition to the team aspect of the pilots, there is also a dimension of instruction. The aircraft commander should teach his or her copilot the role of an aircraft commander. The navigator or boom operator might train to instruct in his or her individual specialty, but neither person will change duties nor occupy another crew position on the aircraft.

The supervision chain will be changed to recognize the various needs of the different aircrew specialties. Each group—pilots (pilots and copilots), navigators, and boom operators—will be divided into smaller groups under the supervision of more experienced members in the same specialty, rather than under aircraft commanders who may have little direct knowledge of the skills involved in the crew member's actual in-flight duties.

A senior specialty chief will command the pools of pilot teams and other specialties. This specialty chief will also act as the senior instructor in the specialty. In the case of the boom operators, the senior specialty chief will also be the refueling superintendent/first sergeant.[17] The senior specialty chief will serve as the primary individual responsible for crew member training and for professional development.

The pool system will enable a more equitable sharing of flights, alerts, and missions away from home station. Presently, each aircrew member is assigned to a crew. The present management system identifies the crew by number and schedules the integral crew as a whole for flights, alert tours, TDYs, and leave. Substitutions in certain crew positions due to illness or other reasons often cause individuals to perform extra duties (e.g., pull alert with another crew to fill in for someone who is ill and then pull alert with their own crew with minimum time off). Those who lose leave present another common problem situation. This occurs when a crew member is reassigned to a crew that has just completed leave (note that crews receive leave as crews) and the crew from which the crew member left had not received any leave. Frequent crew changes exacerbate the problem. The pool system allows for individual duty assignments based on the date of last accomplishment. Therefore, the crew member who has gone the longest without accomplishing that duty will be scheduled when an individual is required for a flight or alert tour.

A New Wing Organization

The next step up the organizational ladder in a new tanker organization will be the air refueling wing (AREFW). This is not a new strategy in itself (tanker wings do exist). However, the proposed organizational change would stipulate that no other wing organization would have a refueling squadron as one of its components. Presently, 15 of the 23 wings in SAC that have air refueling aircraft are bombardment wings, one is a reconnaissance wing.[18] The remaining six are air refueling wings.[19] SAC has various models of 432 bombers and 675 tankers.[20]

In reviewing the concepts that form follows function and that mission dictates structure, one can easily understand that when the structure of SAC wings was developed, the emphasis was on aerial bombardment.[21] Today, aerial bombardment is only one of the missions of SAC; the varied missions of aerial refueling have increased so that the air refueling forces need their own wing structure to properly control and utilize the tanker asset.

Tankers should be arranged into two 24 PAA squadrons for a 48-PAA wing. The AREFW would change to a separate organization that is not subordinate to any flying unit on that base. For example, if the AREFW is collocated with a bombardment wing, the wings will assume a host-tenant relationship as in the case of SAC flying wings assigned to missile bases or to bases of another major command.

Building tanker-only wings holds several advantages. First, tanker wings usually cost less to operate than bombardment wings, primarily because of lower security needs, no need for munitions storage and upkeep, simpler aircraft systems, and a smaller requirement for intelligence support.[22]

The second advantage is in the area of maintenance. The centralization of tanker units would bring together more tanker specialists, larger prepositioned parts inventories, and a greater opportunity for maintenance technicians to become experts in their craft. A larger maintenance organization dedicated to tankers would allow a higher degree of stability and specialization. For example, if you have a two-man maintenance shop and one moves, you experience a 50 percent turnover. To contrast, if you have a four-man shop and one moves, you suffer only a 25 percent turnover. With the growing lack of experience in the maintenance career field, centralization would keep efficiency relatively high.

The Deputy Commander for Operations

As we organize the wing itself, we can use figure 3 to determine how the operations deputate (DO) will change. The discussions on the deployable refueling package and the squadrons have already shown that some of the functions previously performed at the DO level will be accomplished at a

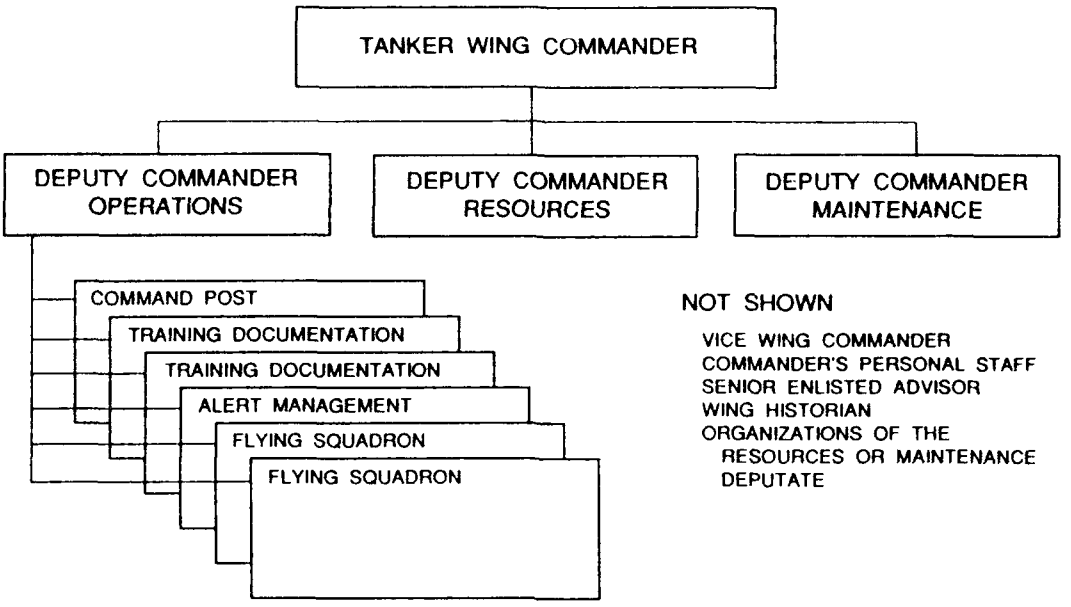


Figure 3. Proposed Wing Structure

lower level. The mission of the DO will not change. Indeed, the DO will retain responsibility for planning, programming and managing, training, and ensuring the combat readiness of all aircrews.[23] However, the difference will be that the DO will be able to concentrate on his or her role of overall commander and air-leader of the air refueling wings' aircrews. The wing-level staff functions have critical importance, but the DO should be free to manage by wandering around rather than by being tied down to administrative tasks that can be performed at a lower level.[24] To assess the pulse of the crews, the DO would spend more time observing crew performance and less time being chained behind a desk.

As noted earlier, many of the staff and support functions will be assigned to the squadrons. This maneuver seems reasonable because many of the wing support functions basically sustain the squadrons, not the wing. For example, crew members will study and use most of the planning done in the emergency war order plans division (DOX); so DOX is placed in the squadron to maintain direct contact with those crew members it is to support. Again, the structure should fit the mission.

A New Command Organization

As the organization at the wing level changes, the command structure supporting the wing must also adapt. A focus on changes above the wing level will finish the orientation on the bottom-up structure.

All of SAC's air refueling wings (comprised of two 24 aircraft squadrons) would be commanded by a new position, the commander of air refueling (CAR) operations. As outlined in figure 4, this position at Headquarters SAC would become the focal point of all air refueling, since the current numbered air forces would no longer have any tankers assigned.[25] The CAR would work for the commander in chief of Strategic Air Command (CINCSAC) to allow a direct operational chain of command for SAC-assigned assets.

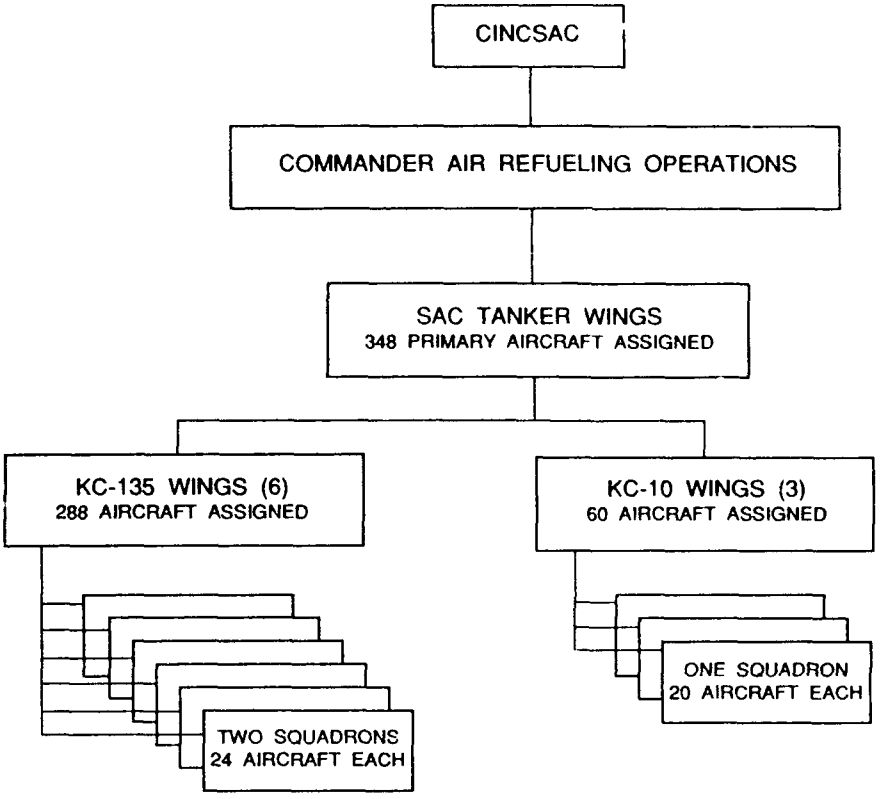


Figure 4. Proposed SAC Tanker Wing Structure

The staffs at Headquarters SAC supporting tankers would also be aligned under the CAR. As shown in figure 5, the functions performed by the staffs at the numbered air forces and Headquarters SAC would be done by the tanker staff. Of course, some less important functions may not be done because of the smaller staffs required by the lowering of funding. But the jobs that are essential to the proper training and employment of the tanker asset would be included and accomplished. The tanker staff would find itself in two main divisions: the employment staff and the support and planning staff divisions.

The employment staff division would handle the training and actual employment of the tanker resource. It would have two branches: the training branch and the operations and scheduling branch.

The training branch would focus on the content and requirements for all initial and continuation training in SAC. In addition, this branch would be

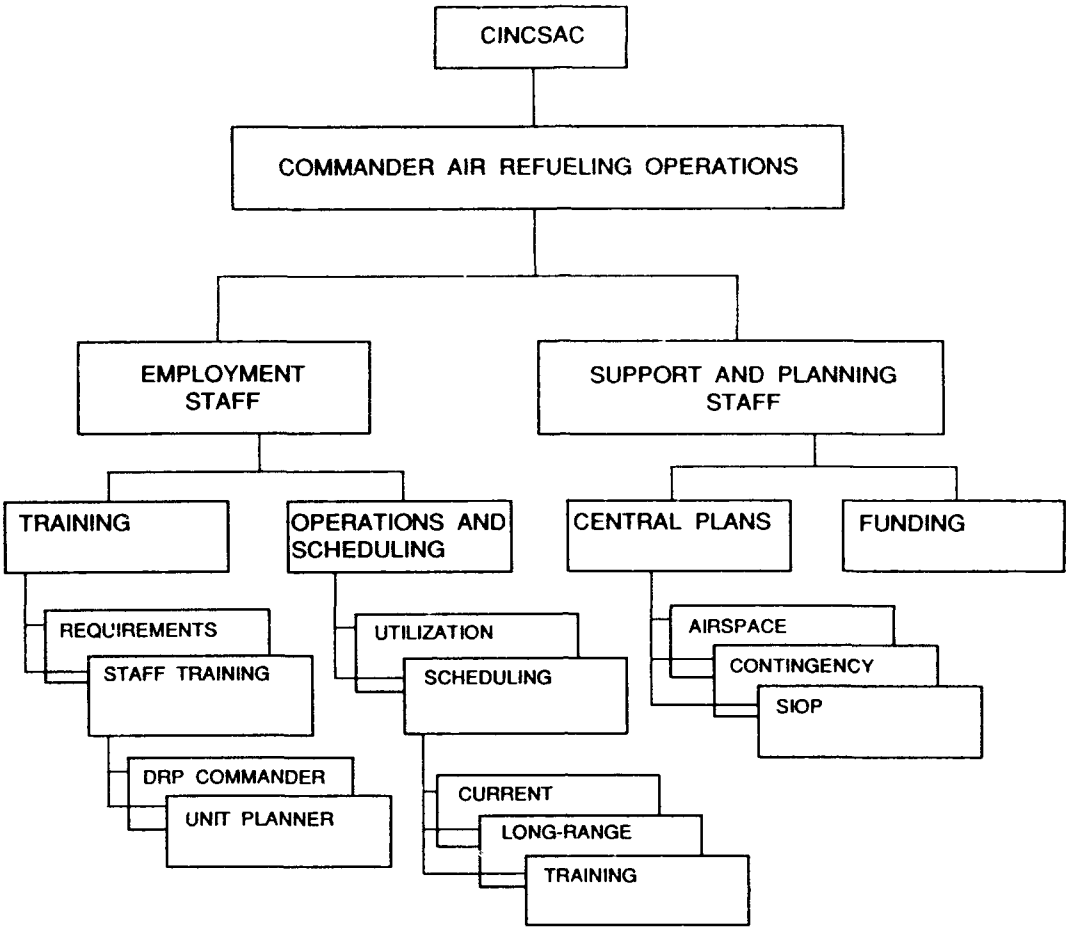


Figure 5. Proposed Headquarters SAC Structure

responsible for the writing and updating of the training regulations for the SAC tanker aircraft. Further, as the central point of contact for tanker training, this branch would be in charge of training waivers and controlling the class allocations for formal aircraft indoctrination for the tanker aircraft.

The training branch would also serve as the point of contact for a centralized training program for both squadron-level planners and the DRP leaders. The centralized training for these two functions would be critical for the effective use of multi-DRPs. If each unit has a common base of knowledge in these two key positions, the DRPs would be able to join together quickly during large-scale contingency operations.

The operations and scheduling branch would have a three-way function. The first function would prioritize user requests. This function grows more important each day. As the number of tankers declines, more tanker users with validated requests will receive no refueling due to lack of tanker airframes. Increases in the number of refusals will make this job more difficult because of the growing reliance on air refueling to support air operations.

The second function of the operations and scheduling branch would deal with scheduling, which involves both day-to-day training and the marshaling of the proper number of tankers in support of real world missions. The centralized scheduling function would allow SAC to be the single point of contact for refueling. Further, this would allow one group to "flow" the use of the entire tanker force without also having to work through two separate numbered air forces to get enough aircraft to meet short-term tasking requirements.

Finally, this branch would also serve as the central interface for major user groups. That is, this office would function as the office of primary responsibility for the coordination of multicommand or joint taskings. Refueling users would coordinate requests and make inputs about tanker employment with the same office to simplify the air refueling user's ability to make better use of air refueling.

The second group at Headquarters SAC would be the support and planning staff. This division, divided into two branches, would have a long-range orientation.

The central plans branch would serve as the planning center for tanker operations. Involved in this function would be the planning of normal training and specialized planning for the support of contingencies, conventional theater deployments, and the tanker portions of the single integrated operational plan. In addition, the central plans branch would interface with the Federal Aviation Administration to manage airspace for air refueling tracks and anchors in United States airspace. Along with the duties of coordinating airspace, the central plans branch would be in charge of properly coordinating all tanker supported exercises, including ensuring that the appropriate amount of airspace was reserved for the size of the operation.

The other branch of the support and planning division is the funding issues branch. This branch would centralize the control of tanker funding for training, equipment, and actual employment operations. In addition, the funding issues branch would monitor training cost per flight hour and act as the point of contact for the tanker flying time program. These functions should be centralized at this level to ensure that the proper costs are documented and that the aerial refueling asset is used effectively.

Even though this branch seems to be concerned with an accounting function, the office is placed at this level to ensure that aviators have a direct input into the management of scarce flying time and that they stay in the loop as the funds are used for training and operations.

Summary

This chapter has pointed out a new approach to the control and management of the tanker force. This new organizational structure is based on a desire to streamline the tanker organization from the bottom up to best serve

the users of aerial refueling. However, this chapter has not addressed the total picture of aerial refueling. The Air National Guard (ANG) and the Air Force Reserve (AFRES) already control a large percentage of the tanker force, and they would gain a greater percentage when more tankers are transferred from the active duty SAC forces. Chapter 2 covers some of the unique features of the ANG and AFRES and shows how the deployable refueling package concept can be used by the reserve forces to support active duty air refueling needs.

Notes

1. Saul W. Gellerman, "In Organizations, as in Architecture, Form Follows Function," *Organizational Dynamics* 18, no. 3 (Winter 1990): 57.

2. Ibid., 66.

3. Yes, SAC had fighter aircraft. See Norman Polmar, ed., *Strategic Air Command: People, Aircraft, and Missiles,* with a chronology compiled by the Office of the Historian of the Strategic Air Command under the direction of John T. Bohn (Annapolis, Md.: Nautical and Aviation Publishing Company of America, 1979), 39.

4. For critical training or actual missions the crew ratio could be expanded up to 1.7 crews per aircraft in wartime. A tanker squadron's crew ratio presently is 1.27 crews per aircraft. Capt Robert Harrison, Headquarters SAC/XPMO, interview with author, March 1991.

5. For long-term, in-place operations, other equipment and personnel would be required.

6. For either long-term or special deployments, certain specialists in certain fields such as hydraulics and avionics can be added as needed to the basic package.

7. Office of the Historian, Headquarters SAC, *Seventy Years of Strategic Air Refueling 1918–1988* (Offutt AFB, Nebr.: Government Printing Office, May 1990), 64.

8. Ibid.

9. Maj Harry J. Davis II, USAF, telephone interview with author, 4 September 1990.

10. Emission control is the management of electromagnetic radiations to counter an enemy's capability to detect, identify, or locate friendly emitters for exploitation by hostile action. Technical Order 1-1C-1, *Basic Flight Crew Air Refueling Manual,* 4 August 1989, 3.

11. Headquarters SAC, *SAC Facts Book* (Offutt AFB, Nebr.: Government Printing Office, February 1990), 36–37. (For Official Use Only [FOUO]) Information used is unclassified.

12. Ibid.

13. Tanker task forces are forward bases that have a refueling contingent supplied from other air bases on a temporary basis. SAC tanker units are periodically tasked to support permanent tanker task forces at Anderson AFB, Guam; Eielson AFB, Alaska; and RAF Mildenhall, United Kingdom. The tasked unit normally will send only one crew at a time to these forward locations.

14. Harrison interview.

15. The decentralization may be somewhat more costly, since there may be some duplication of effort. However, with the large disparity in the experience level in the crew force, a slight increase in personnel costs will be paid for by the benefits of inserting experienced men and women at the squadron level.

16. Technical Order 1C-135(K)R-1, *Flight Manual USAF Series KC-135R Aircraft,* 1 May 1984, including changes 1 through 22, 5-1. Note: Two pilots could fly the aircraft but for nontactical missions only.

17. The chief boom operator is dual-hatted as refueling superintendent and first sergeant because the enlisted manning is so low in flying squadrons the units do not actually rate a first sergeant.

18. The reconnaissance wing is located at Beale AFB, Calif. With the retirement of the SR-71 aircraft, there are no receiver-capable aircraft assigned to that unit. It may retain its reconnaissance title due to the U-2/TR-1s still stationed there.

19. Norman Polmar and Timothy M. Laur, eds., *Strategic Air Command: People, Aircraft, and Missiles,* 2d ed. (Baltimore, Md.: Nautical and Aviation Publishing Company of America, 1990), 213.

20. Ibid.

21. Gellerman, 57.

22. Capt Robert Harrison, USAF, telephone interview with author, 13 August 1990.

23. SACR 23-9, *Organizations and Functions of Strategic Air Command Units,* 12-4.

24. For a start in thinking about "managing by wandering around," see Tom Peters and Nancy Austin, *A Passion for Excellence* (New York: Random House, 1985).

25. As of this writing, three separate studies under way discuss the decision to keep or do away with the numbered air forces.

Chapter 2

Integrating Reserve Forces Refueling Assets

The Air National Guard (ANG) and the Air Force Reserve (AFRES) have been actively involved with the KC-135 since 1975.[1] Since that time the importance of ANG- and AFRES-controlled tankers has grown steadily until the Guard and the Reserve now control 25 percent of the Air Force air refueling assets.[2] The Air National Guard gained more aircraft during fiscal year (FY) 1991 from the active component to increase its capability to support the air refueling mission.[3] The reserve forces' active and growing role in overall refueling operations demonstrates the importance of looking at how the ANG and AFRES organizations will fit into a changing SAC tanker structure. A greater understanding and acceptance of abilities and limitations between the active duty and the reserve forces can be helpful in linking the proposed active structure to the ANG and AFRES.

The Mission of the Reserves

At this point we should review the mission of the ANG and AFRES.

> The mission of the two components is to train and provide combat flying units . . . and qualified personnel for active duty in the Air Force:
>
> a. To support wartime requirements.
>
> b. To perform such peacetime missions as are compatible with Guard and Reserve training requirements and the maintenance of mobilization readiness.
>
> c. To conduct training in support of Total Force capabilities.[4]

The Total Force Policy

In 1973 the Air National Guard and AF Reserve forces became full partners with the active duty forces under the total force policy.[5] With the beginning of this policy, the Guard and Reserve became part and parcel of contingency war plans and became directly involved with many of the missions that up until this time were the province of the active forces.[6] Air Force Regulation (AFR) 45-1, *Purpose, Policy, and Responsibilities for the Air National Guard and Air Force Reserve,* goes further by stating that the role of the Air National Guard

and the Air Force Reserve is to be "the initial and primary source of augmentation forces in any emergency that requires rapid and substantial expansion of US Air Force combat capability."[7] The regulation also states that many units represent the Air Force's initial capability.[8]

KC-135s assigned to SAC are part of the reserve forces that are part of the initial capability. In addition to mobilization requirements, the ANG and the AFRES tanker units continually fulfill a full-time mission by keeping one—and sometimes two—aircraft on continuous alert in support of the single integrated operational plan (SIOP).[9] Since the Guard and Reserve units gained tanker aircraft, they have participated in SIOP alert, peacetime training, deployment exercises, and tanker task forces overseas as would any active duty air refueling unit.[10]

It is the combination of the total force policy, the mission of the ANG and AFRES, and the control by the ANG and AFRES of a growing percentage of refueling assets that dictates the need to discuss the reserves in light of a new tanker organizational structure. The combination also contrasts some of the differences between the active and reserve forces in performing the air refueling mission.

The Deployable Refueling Package Concept

The first issue to consider in this context is the application of the deployable refueling package (DRP) to the reserve forces. This is a simple process, especially since the present size and alert requirement of the reserve units lend themselves to the package concept. The Guard or Reserve unit with 10 assigned aircraft would normally support the SIOP with two aircraft on alert.[11] The remaining aircraft would be available for deployment (minus any aircraft in depot-level maintenance) when enough crews are formed to support the mission. Since the role of the Air National Guard and the Air Force Reserve is to be the initial and primary source of augmentation of the active forces in an emergency, it would be beneficial if the Guard and Reserve were configured in the same size blocks as the active forces during a rapid mobilization and employment scenario.[12] A standardized force structure that runs across active and reserve lines would aid the planners and logisticians in their consideration of the abilities and requirements of all forward-deployed units, active or reserve. This force structure would also aid in the call-up of the Guard units themselves. According to public law, a Guard unit that trains as a unit must be called as a unit. Many feel this means if you need four aircraft to support a quick-reaction incident overseas, the command authority would have to call the entire refueling group. However, during Operation Desert Shield/Storm smaller portions of units dubbed "designer UTCs" were used to call up smaller numbers of personnel with specific skills.[13] It would further support the change to the DRP format for the training and planning of deployments or mobilizations.

The deployable refueling package could be easily supported in peacetime by the ANG and the AFRES with some restrictions. The first restriction is that deployment training with a full, four-aircraft package would probably be restricted to coincide with the reservists' annual 15-day active duty training period. During these times the unit could schedule DRP-type deployments in conjunction with either exercises, standard tanker task forces, or individual DRP operations at a forward location.

In this case, it would be beneficial for those crews to practice deploying in support of actual assigned unit missions. That is, if a unit has a mobilization tasking to support A-10s in a desert climate, that portion of the reserve unit should try to exercise against their planned counterpart.

Part-time Tankers

My next point is obvious. The reserve forces are manned with part-time help. Although each Guard or Reserve unit does have a group of full-time reservists attached to it, each unit requires these key individuals to participate in day-to-day training and to keep the ongoing business of the unit under control; these reservists are not available for all contingency taskings. Reserve forces are attractive because they cost less than active duty units for several reasons but primarily because a guardsman or reservist will not receive any pay if he or she did not participate in a specific act or training event. Nationwide, 75 percent of ANG personnel are traditional (part-time) guardsmen, although some Guard and Reserve personnel do work full-time at the unit, and they are responsible for training the unit's members.[14] The part-time aspect makes the reserves attractive to certain key individuals in the US government. For example, the Air National Guard, which is the fifth largest air force in the world and is easily equivalent in size to an active duty major command, used only 3.5 percent of the total FY 1991 obligational authority of the US Air Force.[15] Unfortunately, all missions and functions have a cost. In this case the cost is a loss to the US Air Force of immediate aircraft availability.

It is easy to see that you cannot get the same time availability and responsiveness with part-time help as you can expect with active duty support. People who drill and train as traditional guardsmen and reservists must work other jobs to supplement their incomes.[16] The reserve forces are, after all, intended for full-time use only in times of national crisis. This push-pull relationship between active duty desires and reserve abilities is a key point of misunderstanding. Sen Sam Nunn (D-Ga.) advocates putting more aircraft and missions into the ANG and the AFRES. He feels that perhaps more active duty personnel should be required at the reserve force units to support contingency taskings.[17] How then does the "part-time" force impact day-to-day operations?

Consider this example. A traditional Guard crew is scheduled to fly a training sortie to refuel a B-1B. The guardsmen have worked an eight-hour day at their civilian job and are scheduled for a three-hour flight. If all things go as planned, the Guard crew will have time to perform the mission and to get to bed in time to perform well at their civilian job.

However, if the B-1B is not going to be on time, the reserve crew has little flexibility for delay against a receiver held up by maintenance problems or bad weather. In this situation an active crew would often wait until the receiver was ready to fly. The Guard crew on the other hand probably would accept another mission because the crew would not have the time to wait. Also, many times traditional guardsmen's and reservists' schedules are such that the number of days they can fly is severely limited. In that case the flight is a use-it-or-lose-it situation.

Problems in Day-to-Day Integration

As stated earlier, the mission of the reserve forces is to train. The difference in the basic mission can cause confusion when an Air National Guard or Air Force Reserve crew is tasked to support an overseas tanker task force. Often, the tanker task force will want a crew positioned for a possible mission—for example, strip alert (when an aircraft is prepared for expedient takeoff). In some tanker task force locations, a crew can perform plenty of strip alert but little actual flying. The reserve crew may be on a limited active duty status. Further, due to their civilian jobs or to their unit's funding, reserve crews can face severe time constraints to complete continuation training to perform peacetime missions and maintain mobilization readiness.

The next two issues involved in the active-versus-reserve tanker issue are availability and flexibility. One of the major flexibility issues was illustrated previously and dealt with a mission to refuel a delayed B-1B. The time flexibility of the ANG and AFRES missions is often restricted. However, other aspects of flexibility in which the Guard and the Reserve are much more responsive are often overlooked. For example, one-time or short-notice changes to a mission can be worked with a reserve unit for two reasons: first, ANG and AFRES crews tend to be more experienced in both the unit-equipped aircraft and in flying in general; second, since Guard units have a much more stable personnel base, the units can develop "relationships" with nearby receiver units. These reserve units can tailor missions and training to suit the needs of the receiver and then continue them over time with no loss of continuity.

Can Guard and Reserve units be available to perform crisis taskings comparable to active units? It depends. For example, an active unit normally performs SIOP alert with one-third of the aircraft assigned. So, in this case an active unit can only generate and deploy (without taking aircraft off SIOP alert) approximately 66 percent of the unit. An ANG unit might own 10

aircraft but have only two of them dedicated to SIOP alert. Therefore, if the unit mobilized or got enough volunteers for a mission, the Guard or Reserve unit could in fact mobilize 80 percent of its tankers and not affect its SIOP commitment.

Mobilization and Stability

When we talk of mobilizing the Guard and Reserve, it is important to realize the means by which the reserve forces can be called up. There are three basic avenues through which the president can gain control of the reserve forces. The first avenue concerns the general mobilization of forces, as done during World War II. The next avenue focuses on what is known as the 200K option, in which the president can activate—without congressional approval—up to 200,000 reserve personnel. The third option is the "volunteer" option. This statutory provision allows service secretaries to admit reservist volunteers to serve on active duty without a general mobilization or formal call-up.[18]

One major drawback to the Guard and Reserve's gaining more tanker aircraft is directly related to the issues of call-up and mobilization. If an active duty commander needs to deploy all available aircraft on a short-notice basis, he or she needs only to issue a recall (notify all personnel to report for duty) and process the required troops for the deployment. Using the reserve forces is more complex. The first issue is whether the requirement is directed by congressional or presidential authority (i.e., by a general mobilization or a 200K call-up). If not, the unit must look for volunteers who can handle the time away from their primary jobs and who can be activated if the governor approves.[19] This issue is crucial for future operations. How often can a drilling reservist or guardsman leave full-time civilian employment without some type of repercussion? In addition, how long will it take the employer to stop hiring guardsmen and reservists? Since the extra income from reserve membership attracts a great many people, the pay cut of being called to active duty too often might negatively impact the recruiting and retention rates for the Guard and Reserve.

A discussion of deployments or mobilization brings you to the crux of the issue that involves putting aircraft into the hands of the Air National Guard or the Air Force Reserve: a desire to lower cost compels the active force to give up a certain amount of availability and control of that asset. This key factor must not be overlooked by either the military or the civilian leadership. A military asset or mission entrusted to the Guard or Reserve is not unlike a capital asset invested in long-term debt instruments; it costs extra to withdraw the assets early. Further, when an asset is invested, you lose control of how that asset is used.

The tankers entrusted to the reserve forces are Strategic Air Command assets under the control of another entity. Both the Air Force Reserve and

the Air National Guard do a good job with the assets they are given, but these assets are not owned nor controlled by the gaining command (i.e., SAC) until they are mobilized. This presents a problem that is not often encountered in military circles. In peacetime, the Guard and Reserve units are "SAC-gained," but not "SAC-owned."

The long continuity in personnel and experience of the reserve forces is one of their great strengths. Units have pilots and maintenance personnel who are intimately familiar with both the aircraft and the mission. This is possible because of the traditionally low turnover rate.[20] Further, the guardsman or reservist may have a civilian job that adds to his or her military skill. However, the most important technical aspect is the high experience levels of the reservists with certain aircraft. Many have heard stories of an ANG crew chief who has been a crew chief on one aircraft longer than many active duty crew chiefs have been in the Air Force.

Even though the long, proud tradition of the reserve forces adds a great deal to the esprit of the Air Force as a whole, there are some problems. First, transferring more aircraft to the Air National Guard and the Air Force Reserve causes a proportional need for more personnel. This support must come from working part-timers more or hiring more part-timers or hiring more full-time personnel. Each of these options has certain drawbacks. If you work your present part-timers more, you might experience the troubles discussed above with employers and guardsmen. Hiring more part-timers seems like a good option, but some units in geographically isolated areas could have trouble getting quality personnel. Further, part-timer manning requires more personnel to get the job done on a continuing basis than full-time manning. Finally, you could hire another full-time guardsman in status as a technician or as an active Guard/Reserve or augment units with more active duty personnel.[21]

Involved in this situation is the understanding of differences in the way the active duty and reserve forces do their mission. For example, a common misconception about the ANG and AFRES is that they are "weekend warriors." This error came to light during SAC's Project 40 campaign, an initiative by CINCSAC to have a 40-hour workweek as a standard regardless of manning dictated by Congress due to budget cuts (i.e., doing less with less). One suggested proposal to save active duty manpower was to have the reserves do the weekend flying. The flaw in the idea is that the Guard and the Reserve don't fly much on weekends either.[22] The weekend drill or unit training activity once a month is not primarily for flying but for unit ground training, and other nonflying matters. The one weekend a month away from family is probably enough for most reservists. Much more time away could impair the recruiting and retention capability of the unit.

A corollary to the above idea would team the Guard or Reserve units with nearby active duty units. This happens informally among many units; schedulers are constantly on the phone trying to adjust schedules in light of each unit's maintenance and crew availability. The formalization of the process would only serve to ensure that the reserve forces would become full

partners in the process. Hopefully, this would lead to a greater sharing of all tasks.

In summary, SAC should keep in mind what the Guard and Reserve are and what they are not. First and foremost, in spite of what some politicians might say, the reserves cannot replace active duty tanker crews unless the guardsmen or reservists are themselves fully mobilized to active duty. In this situation the reserves will eventually cost as much to support as will active duty crews. The cost benefit for guardsmen and reservists has historically been that they are not paid for time not worked. If a greater number of the tanker resources is given to the Guard and Reserve, you could expect a drop in the amount of the day-to-day training support of the users of air refueling unless the ANG and AFRES drastically increase either the number of crews assigned to a unit or unless the amount of active duty time in the unit increases. However, the reserve forces are a low-cost alternative to sending good aircraft with a critical and continuing mission to the "boneyard." Sending aircraft and crews to the reserve forces will save the tanker assets for the next time there is a large need for refueling support. Training and forming the reserve forces in the DRP format will help in the rapid mobilization of reserve forces and will increase the speed in which they integrate with the active duty forces in times of national crisis.

In addition to the role of the Air National Guard and the Air Force Reserve in support of air refueling, other issues will directly relate to the tanker and its role in the Air Force. Two issues related to the DRP structure will be addressed in the next chapter: (1) The viability of the concept is connected with the issue of basing. (2) The location of the tanker asset is crucial in the light of a shrinking force.

Notes

1. Office of the Historian, Headquarters Strategic Air Command, *Seventy Years of Strategic Air Refueling 1918–1988* (Offutt AFB, Nebr.: Government Printing Office, May 1990), 45.
2. Headquarters SAC, *SAC Facts Book* (Offutt AFB, Nebr.: Government Printing Office, February 1990), 49. (FOUO) Information used is unclassified.
3. House Subcommittee on the Department of Defense, Committee on Appropriations, 101st Cong., 2d sess., 1990, pt. 3, 429–30.
4. AFR 45-1, *Purpose, Policy, and Responsibilities for the Air National Guard and Air Force Reserve,* 2 January 1987, 1.
5. Richard D. Lawrence, *The Guard and Reserve in the Total Force,* Bennie J. Wilson, ed. (Fort Leslie J. McNair, Washington, D.C.: National Defense University Press, 1985), xi.
6. Ibid., 1.
7. AFR 45-1, 1.
8. Ibid.
9. Lt Col Merle S. Thomas, 190th AREFG/DO Kansas ANG, Forbes Field, Kans., telephone interview with author, 30 July 1990.
10. Ibid.
11. Ibid.

12. AFR 45-1, par. 1.

13. Col Michael Killworth, Idaho ANG, interview with author, April 1991.

14. Ibid.

15. Ibid.

16. The traditional reservist may only get one weekend drill (four pay periods), four additional flying training periods per month, and an annual 15-day training period, for a total of 111 days of pay each year.

17. Sam Nunn, "Implementing a New Military Strategy," *Vital Speeches* 56 (15 May 1990): 454.

18. Killworth interview.

19. Ibid.

20. The ANG has an annual turnover of only 10 percent. See Killworth interview.

21. The technician is paid as a civil servant who drills with the unit, although the active Guard/Reserve is paid as an active duty military person employed by the ANG and not the Air Force.

22. Thomas interview.

Chapter 3

Key Issues in Changing the Tanker Force

As with any change process, many issues could be addressed concerning the proposed restructuring for the tanker force. This paper does not address all related topics, but it does discuss the single integrated operational plan (SIOP) alert and aircraft basing. These two subjects are especially important because of the direct impact each can have on the validity of the new structure.

Keep in mind that the primary mission of the KC-135 aircraft is to support the SIOP.[1] Any change in the structure of a tanker wing or squadron must take into account the support of this primary and critical mission.

Strategic Air Command Alert

In 1957 the Strategic Air Command accepted the KC-135, its first all-jet tanker, and began its program of one-third ground alert.[2] The concept of ground alert puts an aircraft and an aircrew at their highest state of readiness, or "on alert," for a call to launch in response to the direction of the national command authorities. SAC planners devised ground alert in response to the growing threat of Soviet ballistic missiles that could be used in a surprise strike.[3] Since the inception of the alert concept, SAC has kept at least one-third of its tankers and aircrews ready to support bomber aircraft on their retaliatory nuclear mission. The tanker force is critical to the success of a penetrating bomber on a nuclear mission.[4] The activity of being on alert (called "pulling or sitting alert") is normally divided among the crews in week-long "tours." During the alert tours the aircrews are fed and billeted in close proximity to the aircraft to ensure that the crew can respond in minimum time. During this week, the crew must always be able to respond to the aircraft, start engines, taxi to the runway, and take off as quickly as possible. The speed at which the aircraft can be launched after a directive from the president of the United States has a direct relation to the ability of that aircraft to survive and accomplish its mission.[5]

Enlarging the squadrons and the air refueling wings and changing the hard crew system can actually ease the crew manning problems for the squadrons. Presently in most tanker squadrons a mission-ready crew member who is not assigned as squadron or wing staff or as a flight examiner will pull alert every

third week. This cycle is fairly stable. However, if a crew member is unable to pull alert due to sickness, leave, or temporary duty off station, a substitute will be required. This substitute will often pull all or part of the alert tour, then have to pull a tour with his or her regular crew. The mixed-pool system will lower the number of crew members serving extra tours. The pool system will equitably allocate the duty among the crew members in each specialty, especially for the navigators and boom operators.

In addition, moving the SIOP planning function to the squadron level further improves the squadron's ability to support alert in these ways. For one, the mission development will be shared more fully by the individual crew members. As stated earlier, this scheme forces the younger crew members to learn about the employment of tankers earlier in their careers. The personal authorship of locally produced materials helps the crews to derive a greater sense of satisfaction in the planning process.

The new structure will have no adverse effects on a unit's ability to support the traditional 30 percent alert rate that has been the primary duty of SAC tanker units since the 1950s. The decentralization of key tasks and the implementation of the mixed-pool system will tend to spread the work load more equitably.

Tanker Basing

With the advent of a new structure, combined with force downsizing, SAC will be required to implement ways to save money and still perform as much of its missions and taskings as possible. The reductions in manpower will require new thinking in operations and maintenance to sustain productivity. As budget cuts loom in the future, the resulting reductions in force structure will logically lower the number of bases required.[6]

One way to sustain output of many functions is to locate them at a central location to derive economies of scale and lower duplication of effort. This idea is especially effective if the decentralized locations are not working to capacity.

Decreasing the number of bases also causes a reduction in the amount of money required in the daily housekeeping functions of an air force base. However, savings can be derived by consolidating not only the maintenance and support structure but also by merging the operational units as described in chapter 2. There are two general categories of costs: fixed and variable. Fixed costs are those costs that are not generally affected by a change in operations or production; for example, the costs of maintaining a runway are the same whether you fly two or 25 sorties in an eight-hour period. Variable costs are those that change with usage. The cost of keeping the lights on must be added to the variable cost, which is attributable to an increase in the tempo of operations. Flying two or 25 sorties might not make a huge dif-

ference in runway costs, but it will obviously increase fuel-usage rates tremendously.

The centralization of the tanker force will have the most positive effect on lowering the fixed costs involved in the tanker force. It is obviously cheaper to consolidate aircraft and crews at one base until that base is saturated; that is, either there is no more space to park or hangar aircraft or the base facilities can no longer support the number of personnel attached to the base. The quickest saturation point would probably be the number of aircraft stationed at the base.

The first criterion in determining the suitability of a location for the new tanker force structure is computing the available parking area for the aircraft. In the past, the Strategic Air Command did have units with more aircraft assigned to them than they do now. When the B-52 first entered the inventory, some bombardment wings were comprised of 45 bombers and from 15 to 20 tankers.[7] Therefore, the Strategic Air Command has bases that should have ample aircraft parking area to support larger tanker wings. Further, as the bomber inventory is reduced from a total of 399 bomber aircraft as of the end of January 1990, the number of bomber aircraft available at the end of 1999 drops to 93 B-52Hs, 94 B-1Bs, and between zero and 75 B-2s.[8] This decrease in the number of bomber aircraft will cause a further drop in the saturation of aircraft at SAC bases, thus allowing the possibility of consolidating tanker units.

Many observers would argue that the consolidation of the tankers would make them a more vulnerable target to a preemptive nuclear strike. One author points out that the tanker force is more vulnerable and thus a better target for a surprise attack.[9] This particular argument—though strong at first glance—is effectively countered by Donald B. Rice, secretary of the Air Force. The bolt-out-of-the-blue attack scenario requires that our enemies both change many of their standard operating procedures and leave their leadership and large numbers of their forces vulnerable to the inevitable counterattack.[10]

So, with the proper warning response that is involved in Rice's discussion, more tankers could be based together on a daily basis. The deployable refueling package concept would aid in this situation. On a day-to-day basis, the standard number of tankers could be on alert at the home base. However, in the event of increased tensions, the tankers could be easily dispersed to different locations to increase the survivability of the generated force. Since deployment to somewhat austere locations would be a "normal" event, the crews would be able to deploy rapidly and configure for maximum support as required by the plan they are to support. In effect, whenever the DRP is deployed to support an exercise or event, tanker personnel would also practice for dispersal under nuclear threat. The crews could rehearse this scenario often without "tipping off" their plans because the tankers can use both civilian and military runways and facilities. In addition, this plan would actually compound the problems of enemy planners since SAC's use of multiple airfields in peacetime indicates their usability in times of crisis. Tanker

flexibility would thus force these planners to target fields and installations that probably would have no use in the actual prosecution of the SIOP. Because the tankers do not carry weapons, they pose no special hazard as they go in or out of any civil field for DRP-type training.

In making a basing decision, the ability to support lateral commands is important.[11] This is especially true since most of the refueling events are tied to receivers outside of the Strategic Air Command. In the second fiscal quarter of 1991, the estimated tanker support allocation authorized 4,943 air refueling events to other agencies, while providing for only 4,106 refueling events for SAC.[12] This allocation leads to the problem of trying to locate the tanker bases where they can refuel lateral agencies and support SAC SIOP bombers. The problem is that Tactical Air Command and Military Air Command receivers (authorized 3,577 of the above 4,943 events) tend to be southern-based, while the best place to support SIOP bombers is to have the tankers based in the north.[13]

It follows that the selection of the remaining tanker bases is extremely critical if there is a large reduction in the number of these bases in the United States. This reduction does not necessarily mean a total loss of coverage over the continental United States (CONUS). With the proper distribution of the tanker bases, the territory not quickly reached by refueling aircraft can be minimized. For example, using only six active KC-135 bases, three KC-10 bases, and two of the existing Air National Guard bases allows the airspace over the CONUS (except for a 120-nautical-mile strip in North Dakota and the tip of southern Florida) to fall within 450 nautical miles of a tanker base. The 450-nautical-mile radius means that the tankers are still close enough to have reasonable sortie length when they operate out of their home base.

The spacing of the tanker bases in the example is not as convenient as it is right now. There are always trade-offs in any basing scenario. The convenience aspect is directly tied to the operations costs of a unit. The flight to and from a refueling station costs money, and the amount of training that can be accomplished in this phase of flight is limited.[14] The units could use the DRP format to send groups of aircraft out to receivers to do multiday refueling training for short periods or to get geographically closer to required refueling areas when mission dictates.

There are models for the proper selection of base locations and the appropriate costs of either closing or leaving a base open. The issue of base closures is extremely controversial and is an area for an independent study.[15] The central issue here for the use of the tanker force is that SAC can save the money in basing costs. The example model also does not make any allowance for politics; that is, it assumes that the Air Force could close or expand any base as it desired. Such an assumption is probably not totally true. Any base closure would be closely scrutinized by Congress because of the tremendous financial impact a base has on a local area. A senior Air Force officer stated

from the stage at the Air Command and Staff College that if Congress wants to cut force structure, it also needs to support cuts in base structure.[16] It follows that if the force structure of the Air Force is reduced, the Air Force will have to redesign its basing scheme to properly support the amount of aircraft and personnel that remains after the reductions in force have taken place.

It is important to develop workable solutions to the force structure problem in conjunction with the basing issue before an outside agency imposes a hard deadline. Doing this type of planning allows the Strategic Air Command to make its case to protect the use of those locations that would be the most useful in support of the largest range of operational scenarios.

The tanker force can be organized to best suit the situation of aircraft availability and overall funding and support for force structure. The key issue is to build a structure that is developed to be multimission- and multireceiver-oriented. Developing and implementing a standard actually will aid in unit comparative evaluations. The cost and efficiency of each unit could then be judged against a standard that is continually being validated; that is, with all the bases and units using the same format, manning, and force structure, it would begin to be much easier to judge each unit's strengths and weaknesses in comparison to the performance of the other tanker units. With the commandwide standard in structure and organization, the Strategic Air Command can continually refine the methods of management and employment of the tanker resource.

Notes

1. Testimony of Gen John Chain (CINCSAC), Senate, *Threat Assessment; Military Strategy; and Operational Requirements: Hearings before the Committee on Armed Services United States Senate,* 101st Cong., 1st sess., 7 March 1990, 993.

2. Norman Polmar and Timothy M. Laur, ed., *Strategic Air Command: People, Aircraft, and Missiles,* 2d ed. (Baltimore, Md.: Nautical & Aviation Publishing Company of America, 1990), 50.

3. Ibid., 49.

4. Michael E. Brown, "The U.S. Manned Bomber and Strategic Deterrence in the 1990's," *International Security* 14, no. 2 (Fall 1989): 25.

5. Ibid.

6. John T. Correll, "How Far is Down," *Air Force Magazine* 73, no. 10 (October 1990): 43.

7. Polmar and Laur, 56.

8. Headquarters SAC, *SAC Facts Book* (Offutt AFB, Nebr.: Government Printing Office, February 1990), 48. (FOUO) Information used is unclassified. Michael Brower, "B-2: New Numbers, Old Arguments," *Bulletin of the Atomic Scientists* 46, no. 5 (June 1990): 25.

9. Brown, 22–25.

10. Donald B. Rice, "The Manned Bomber and Strategic Deterrence: The US Air Force Perspective," *International Security* 15, no. 1 (Summer 1990): 114.

11. George J. Sakaldasis, *A Guide to Strategic Aircraft Basing* (Maxwell AFB, Ala.: Air University Press, 1986), 41.

12. Message, from HQ SAC/DONTA, October 1990.

13. Sakaldasis, 41.

14. Normally the flying time to and from the air refueling station is useful only for navigation training.

15. See Sakaldasis's study in its entirety. Even though the monograph was published in 1986, its basic tenets are still valid, especially since the study gives a good feel for the issues involved in aircraft basing decisions.

16. Names of speakers at the Air Command and Staff College are protected under an umbrella of academic freedom. It is safe to assume that this statement is one high-ranking officer's opinion and does not reflect Air Force policy.

Chapter 4

Summary and Final Comments

The preceding pages have presented a way to make the Strategic Air Command's (SAC) tanker force more responsive, flexible, and usable. The restructuring of the active forces—combined with the proper understanding and use of the Air Force Reserve and Air National Guard forces equipped with tankers—allows SAC to use the tanker assets to the greatest extent possible.

The future of the air refueling force is affected by two crucial events, the national budget crisis and Operation Desert Storm. These two critical events alone provide more possible inputs to the organizational structure of the tanker force than one could cover in a paper of this size.

In light of the large numbers of possible scenarios for force structure and strategic force funding, I have concentrated on some limited issues that will be of use in almost every possible eventuality involving the tanker force. Regardless of its eventual size, how we organize our force will always remain a central issue.

The air refueling forces should be managed in the most efficient way possible. The actual number of tankers the active force requires is open for serious debate. However, the reorganization of the management of the refueling forces could occur with any number of tankers that are in the inventory. The institution of the DRP concept will aid the tanker forces to support receivers. The ability to continue to provide outstanding support for users who require refueling will keep up the tanker's reputation of always being there.

The proposed changes in the force structure can be instituted with or without altering the actual number of tankers. If Congress and SAC determine that the budget can support the same number or more tankers in the active force, the new wing structure will afford an improved format to use the forces at hand. However, if budgeteers reduce the number of tankers in the active force, the new structure will allow for the consolidation of forces and the maximum use of facilities at a minimum number of locations. In this instance the change from the present management format to the new one could be introduced during the actual changes, and base reorganizations will occur in light of large force reductions driven by lower funding levels. In this situation, many of the costs of implementing a new management system would be absorbed in the costs of reducing forces and closing bases mandated in a budgetary reduction.

Both the Air National Guard and the Air Force Reserve are critically important to the air refueling forces in the United States. It is in this vein that I

approached the relationship between the active and the reserve forces involved in the aerial refueling mission. The large need for air refuelings, coupled with the small number of tankers, does not allow for parochial interests to enter in and degrade the rate of operations. The full partnership in the total force dictates that the active duty air refueling units and the Air National Guard and Air Force Reserve are not only in this together but that they all are responsible for the proper, long-term support capability of the tanker forces as a whole. The broad range of support supplied by the Air National Guard and the Air Force Reserve includes the support of the SIOP. The reserves are and will continue as a large part of the Air Force's capability to support diverse operations across the spectrum of conflict.

The support of the SIOP remains a central tenet in the employment and use of the tanker asset. The proposed changes will not negatively affect the use of the tankers in the support of the long-term nuclear deterrent posture of SAC forces. The DRP format and larger unit structures allow greater flexibility in scheduling. Finally, the DRP format will allow for the rapid dispersal of aircraft when increased tensions between the superpowers occur.

Finally, we talked about basing and how the DRP format and the larger wing structure would aid in the drawdown and centralization of forces should Congress or SAC deem such action necessary. This paper has argued that with six active duty bases and the present Air National Guard and Air Force Reserve units all but a small area would be within a 450-nautical-mile radius of a refueling base.

Unfortunately, several issues could not be covered within the scope of this study. The first is the total funding activity of the tankers themselves. Who is paying and who should be paying for the tanker usage?

In line with funding, this study made no issue of hardware modernization or of aircraft purchase. These topics should be the focus of an in-depth study.

The strategic tanker has been—and will continue to be—one of the cornerstones of both long-range mobility and strategic deterrence for the United States. As long as transports, fighters, and bombers burn fuel of the type and quantity that they do now, the tanker aircraft will occupy a key role in the making of military affairs. Changing the way we manage and employ the tanker resource will help SAC to maintain a strong deterrent posture well into the twenty-first century.

We welcome your comments on this research report or opinions on the subject matter. Mail them to: CADRE/RI, 401 Chennault Circle, Maxwell AFB AL 36112-6428.

Deterrence in the Face of Explosive Peace

SAC Tankers into the Twenty-first Century

Gant